

```

yiaX2  MNITSNSTTKD--IPRQRWLRIIPPILITCIISYMDRVNIAFAMPGGMDA
prmA   MQ-----KSPQGTWFRRIIVPILIA CIMSEFMDRVNISFALPGGMEQ
PE6    MNTASVSVTQSQAI PKLRWLRIVPPILITCIISYMDRVNIAFAMPGGMDD
PK1    MNSST-----N-ATKRWWYIMPIVFITYSLAYLDRANFSFASAAGITE
prmB   MNTSR-----KLPVKRWYLMPIVFITYSLAYLDRANYGFAAASGIEA
PE1    MNSST-----N-ATKRWWYIMPIVFITYSLAYLDRANFSFASAAGITE
      * .      .      .      .      .      .      .      .      .
yiaX2  DLGISATMAGLAGGIFFIGYLFQVPGGKIAVHGSGKKFIGWSLVAWAVI
prmA   DLLMSSQMAGVVSIGIFFIGYLFQVPGGHI AVRGSGKRFI AWSLVAWAVV
PE6    ELGITASMAGLAGGIFFIGYLFQVPGGKLAVYNGGKKFIGWSLLAWAVI
PK1    DLGITKGISLLGALFFLGYFFFQIPGAIYAERSSVRKLI FICILILWGAC
prmB   DLGISRGTSLLIGALFFLGYFIFQVPGAIYAVKRSVRKLVFTSLLWGFC
PE1    DLGITKGISLLGALFFLGYFFFQIPGAIYAERSSVRKLI FICILILWGAC
      . * . . . . . * . . . . . * . . . . .
yiaX2  SVLT-GLITNQYQLLALRFL LGVAEGGMLPVVLTMI SNWFPDAERGRANA
prmA   SVAT-GFVTHQYQLLILRFALGVSEGGMLPVVLT MVSNWFPEKELGRANA
PE6    SVLT-GLVTNQYQLLFLRFALGRFRSGMLRWVLTMI SNWFPDKERGRANA
PK1    ASLDRDGAQYSRAGR AIRFILGVVEAAVMPAMLIYI SNWFTKSERSRANT
prmB   AA-ATGLISNIPALMVIRFVLGVVEAAVMPAMLIYI SNWFTRQERSRANT
PE1    ASLDRDGAQYSSAGWRSVLFSAVVEAAVMPAMLIYI SNWFTKSERSRANT
      . . . . . . . . . . . * . . . . . * . . . . .
yiaX2  IVIMFVPIAGIITAPLSGWII TVLDWRWLFIEGLLSLVVLVLWAYTIYD
prmA   FVMMFAPLGGMITAPVSGWII ALDWRWLFIEGLLSVVVLAVWWWLMVSD
PE6    IVIMFVPIAGILTAPLSGWII TAWDWRMLFLVEGALS LVVMVLWYFTISN
PK1    FLILGNPVTVLWMSVVS GYLIQAFGWREMFIEGVP AVIWAFCWWVLVKD
prmB   FLVLGNPVTVLWMSIVSGYLINAFGWREMFIEGVP ALIWAIFWWFIVRD
PE1    FLILGNPVTVLWMSVVS GYLIQSFGWREMFIEGVP AVLWAFCWVVLVKV
      . . . . . * . . . . . * . . . . . * . . . . .
yiaX2  RPQEARWISEAEKRYLVETLAAEQKAIAG-TEVKNASLSAVLSDKTMWQL
prmA   RPEDARWLPAAREYLLREMARKAERSKLPPISHAPLQEVFHNPGLMKL
PE6    RPQEAKRISQAEKDYLKTLHDEQLLIK-KTVRNASLRRVLGDKIMWK-
PK1    KPSQVNWLAESEKAALQEQLEREQQG IKPVRNYGEA-----FRSRNVVL
prmB   KPEQVSWLTETEKQQLASAMAEQQQAIPPMRNVQQA-----LRSRNVVL
PE1    KPSQVNWLSENEKAALQAQLESEQQG IKAVRNYGEA-----FRSRNVILL
      . * . . . . * . . . . . * . . . . .

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FIG. 1A

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yiaX2   IALNFFYQGTGIYGYTLWLPTILKELTHS-SMGQVGM LAILPYVGAIAGMF
prmA    VI LNFFYQTDGYGYTLWLPTIIKNLTGA-SIGNVGLLT VLPFIATLSGIY
PE6     ----FFYQGTGIYGYTLWLPTILKGLTNG-NMEQVGM LAILPYIGAI FGML
PK1     CMQYFAWSIGVYG FVLWLPSIIRSGGENMGMVEV GWLSSVPYLAATIAMI
prmB    CLLHALWSIGVYG FMMWMP SII RSAA-SMDIVRVGWLAAVPYLAAIITML
PE1     CMQYFAWSIGVYG FVLWLPSIIRSGGVNMGMVEV GWLSSVPYLAATIAMI
          * * * . * . * . . . . . * * * . * . . . . .

yiaX2   LFSSLSDR TGKRKLFV-CLPLIGFALCMFLSVALKNQIWLSYAALVGC GF
prmA    VVSYLSDKTGKRRQWV-MISLFCFAACLLASVLLREFVLAAYLALVACGF
PE6     IISTLSDR TGKRKFV-ALPLACFAICMALS VLLKDHWWSYAALVGC GV
PK1     VVSWASDKMQNRKLFVWPLLLI AVFAFIGSWAVGANLSWVS YTL LVIAGA
prmB    VISWLSDKTGLRRLFIWPLLLI ASVTFFGSWLLGSYSFWFSYGLLV LAAA
PE1     VVSWASDKMQNRKLFVWPLLLIGGLAFIGSWAVGANHFWASYTL LVIANA
          . * * * . * . . . * . . . . . * * *

yiaX2   FLQSAAGVFWTIPARL FSAEMAGGARGVINALGNLGGFCGPYAVGV LITL
prmA    FLKAATSPFW S I PGR IAPPEAAGSARGVINGLGNLGGFCGPWL VGLMIYL
PE6     FTQAAAGVFWTIPPKLFNAEMAGGARGVINALGNLGGFCGPYMVGV LITL
PK1     AMYAPYGPFFAI IPEMLPRNVAGGAMALINSMGALGSFFGSWFVGYLNGT
prmB    CMYAPYGPFFAI IPELLPKNVAGISIGLINCCGALGAFAGAWLVGYL NGL
PE1     AMYAPYGPFFAI IPEMLPRNVAGGAMALINSMGALGSFFGSWFVGYLNGT
          . . . * . . . . * * . . . * * * * . * * .

yiaX2   YSKDAGVYC-LAISLAL AALMALLLP AKCDAGAAPVK--TINPHKRTA-
prmA    YGQNAAVVT-LAGSLIIAGIIAALLPTQCDLRPAEARQQNFTPRIHDAK
PE6     FSKDVGVS-LAVSLASASVLALMLPNRCDQKAGA-----E-
PK1     TGSPSASYIFMGVALFVS VWLTLIVKPA---NNQKLP---LGAR---HA
prmB    TGGP GASYT FMAIALLVSVGLVFFLKV P---SGNLVTRRLKGD---AK
PE1     TGSPSASYIFMGVALFAS VWLTLIVKPA---NNQKLP---IGAR---HA
          . . . . * . . . .

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FIG. 1B

Fermentative Production of 2-KLG

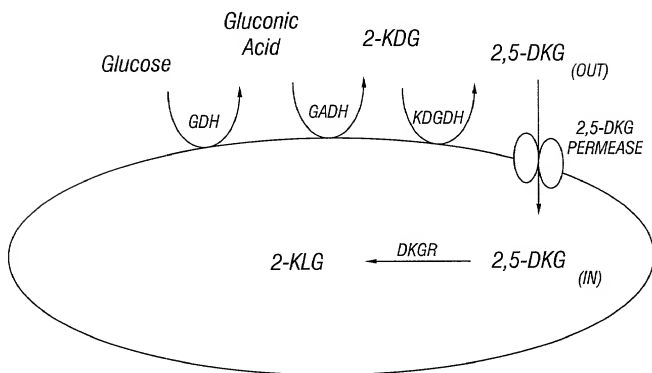


FIG. 2

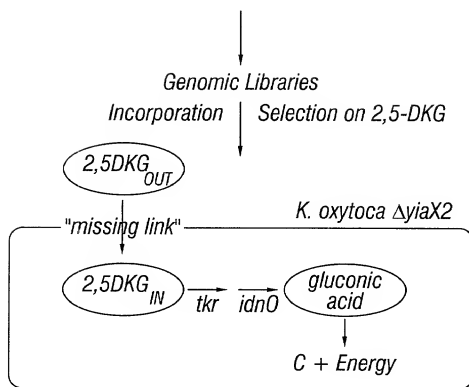


FIG. 3